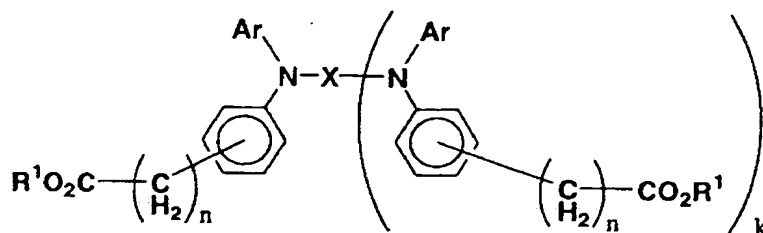


WHAT IS CLAIMED IS:

1. A thiophene-containing compound represented by the following formula (I):

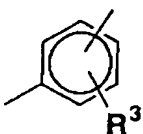
Formula (I)



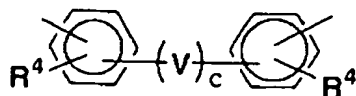
wherein, in formula (I), Ar represents one or more thiophene rings, a monovalent aromatic group containing one or more thiophene rings or a monovalent aromatic group; X represents one or more thiophene rings, a monovalent or divalent aromatic group containing one or more thiophene rings or a monovalent or divalent aromatic group, in which all of the thiophene rings and aromatic groups may be unsubstituted or further may have a substituent; R<sup>1</sup> represents a hydrogen atom, an alkyl group, a substituted or unsubstituted aryl group or a substituted or unsubstituted aralkyl group; n indicates an integer of from 0 to 5; and k indicates 0 or 1; provided that at least one of Ar and X contains a thiophene ring.

2. The thiophene-containing compound according to claim 1, wherein X in formula (I) represents a group represented by any one selected from the group consisting of the following formulae (II-1) to (II-4):

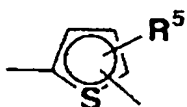
Formula (II-1)



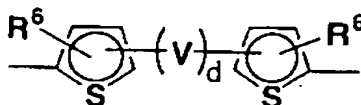
Formula (II-2)



Formula (II-3)

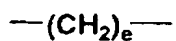


Formula (II-4)



wherein, in formulae (II-1) to (II-4),  $R^3$ ,  $R^4$ ,  $R^5$  and  $R^6$  each independently represent a hydrogen atom, an alkyl group, an alkoxy group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group or a halogen atom;  $c$  and  $d$  each indicate an integer of from 0 to 5; and  $V$  represents a group represented by any one selected from the group consisting of the following formulae (III-1) to (III-11):

Formula (III-1)



Formula (III-2)



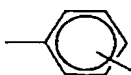
Formula (III-3)



Formula (III-4)



Formula (III-5)



Formula (III-6)



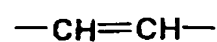
Formula (III-7)



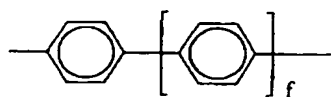
Formula (III-8)



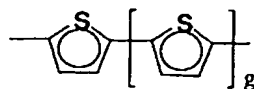
Formula (III-9)



Formula (III-10)



Formula (III-11)



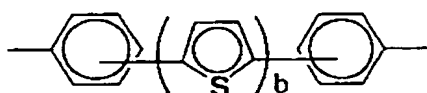
wherein, in formulae (III-1) to (III-11), e indicates an integer of from 1 to 5; and f and g each indicate an integer of from 0 to 5.

3. The thiophene-containing compound according to claim 1, wherein X in formula (I) represents a group represented by any one selected from the group consisting of the following formulae (IV-1) to (IV-4):

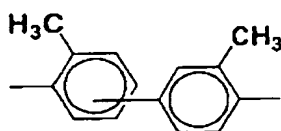
Formula (IV-1)



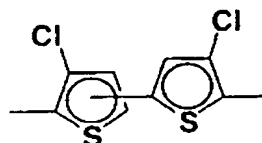
Formula (IV-3)



Formula (IV-2)



Formula (IV-4)



wherein, in formulae (II-1) to (II-4), a indicates an integer of from 0 to 10; and b indicates an integer of from 1 to 10.

4. The thiophene-containing compound according to claim 1, wherein the one or more thiophene rings represented by Ar are selected from the group consisting of a thienyl group, bithienyl group and terthienyl group.

5. The thiophene-containing compound according to claim 1, wherein

the monovalent aromatic group represented by Ar is a monovalent aromatic group having 1 to 10 aromatic rings.

6. The thiophene-containing compound according to claim 1, wherein  $R^1$  in formula (I) is selected from the group consisting of a hydrogen atom, an alkyl group, a substituted or unsubstituted aryl group and a substituted or unsubstituted aralkyl group.

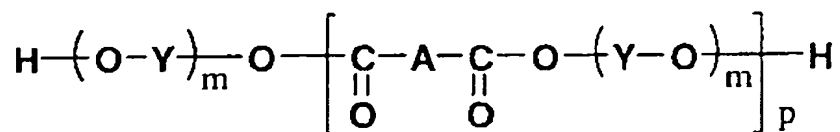
7. The thiophene-containing compound according to claim 6, wherein the alkyl group represented by  $R^1$  is selected from the group consisting of a methyl group, an ethyl group, a propyl group and an isopropyl group.

8. The thiophene-containing compound according to claim 6, wherein the substituted or unsubstituted aryl group represented by  $R^1$  is a phenyl group or a tolyl group.

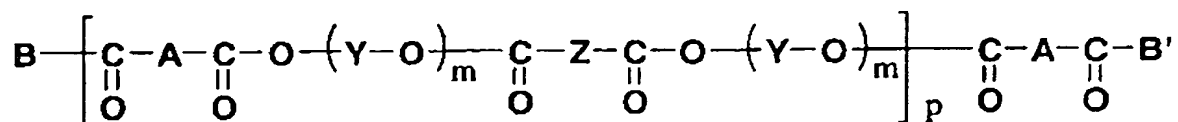
9. The thiophene-containing compound according to claim 6, wherein the substituted or unsubstituted aralkyl group represented by  $R^1$  is a benzyl group or a phenethyl group.

10. A thiophene-containing compound polymer represented by the following formula (V-1) or (V-2):

Formula (V-1)

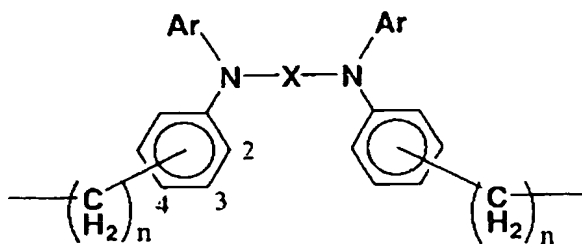


Formula (V-2)



wherein, in formulae (V-1) and (V-2), Y represents a divalent hydrocarbon group; Z represents a divalent hydrocarbon group; B and B' each independently represent  $-\text{O}-(\text{Y}-\text{O})_m-\text{H}$  or  $-\text{O}-(\text{Y}-\text{O})_m-\text{CO}-\text{Z}-\text{CO}-\text{OR}^2$ , in which  $\text{R}^2$  represents a hydrogen atom, an alkyl group, a substituted or unsubstituted aryl group or a substituted or unsubstituted aralkyl group; m indicates an integer of from 1 to 5, and p indicates an integer of from 5 to 5,000; and A represents a group represented by the following formula (VI):

Formula (VI)

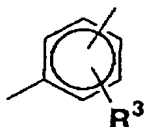


wherein, in formula (VI), Ar represents one or more thiophene rings, a monovalent aromatic group containing one or more thiophene

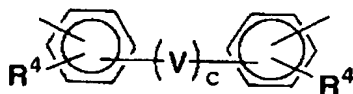
rings or a substituted or unsubstituted monovalent aromatic group; X represents one or more thiophene rings, a divalent aromatic group containing one or more thiophene rings or a divalent aromatic group, in which all of the thiophene rings and aromatic groups may be unsubstituted or further may have a substituent; and n indicates an integer of from 0 to 5; provided that at least one of Ar and X contains a thiophene ring.

11. The thiophene-containing compound polymer according to claim 10, wherein X in formula (VI) represents a group represented by any one selected from the group consisting of the following formulae (II-1) to (II-4):

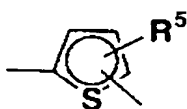
Formula (II-1)



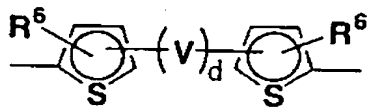
Formula (II-2)



Formula (II-3)



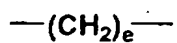
Formula (II-4)



wherein, in formulae (II-1) to (II-4),  $R^3$ ,  $R^4$ ,  $R^5$  and  $R^6$  each independently represent a hydrogen atom, an alkyl group, an alkoxy group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group or a halogen atom; c and d each indicate an integer of from 0 to 5; and V represents a group represented by any one selected from the group consisting of the following formulae (III-1) to (III-

11):

Formula (III-1)



Formula (III-2)



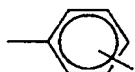
Formula (III-3)



Formula (III-4)



Formula (III-5)



Formula (III-6)



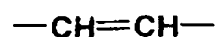
Formula (III-7)



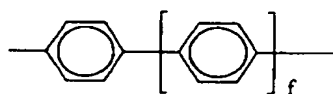
Formula (III-8)



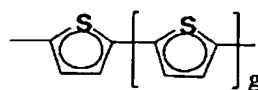
Formula (III-9)



Formula (III-10)



Formula (III-11)



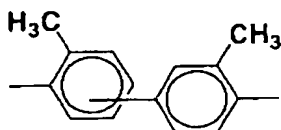
wherein, in formulae (III-1) to (III-11), e indicates an integer of from 1 to 5; and f and g each indicate an integer of from 0 to 5.

12. The thiophene-containing compound polymer according to claim 10, wherein X in formula (VI) represents a group represented by any one selected from the group consisting of the following formulae (IV-1) to (IV-4):

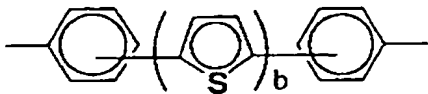
Formula (IV-1)



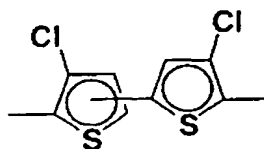
Formula (IV-2)



Formula (IV-3)



Formula (IV-4)



wherein, in formulae (II-1) to (II-4), a indicates an integer of from 0 to 10; and b indicates an integer of from 1 to 10.

13. The thiophene-containing compound polymer according to claim 10, having a polymerization degree ranging from 5 to 5,000.
14. The thiophene-containing compound polymer according to claim 13, having a polymerization degree ranging from 10 to 1,000.
15. The thiophene-containing compound polymer according to claim 10, having a weight average molecular weight  $M_w$  ranging from 10,000 to 300,000.